



## Are farmers interested in involving landscape complexity in their pest regulation strategies?

Nicolas Salliou, Cécile Barnaud, Claude Monteil, Aude Vialatte, Jean Philippe Choisis

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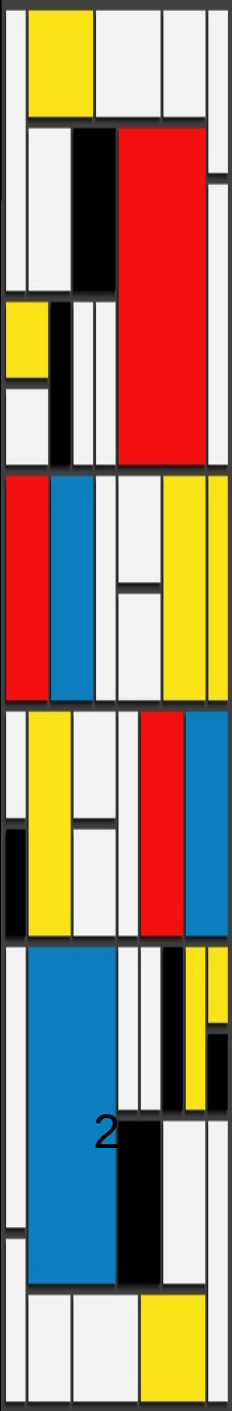
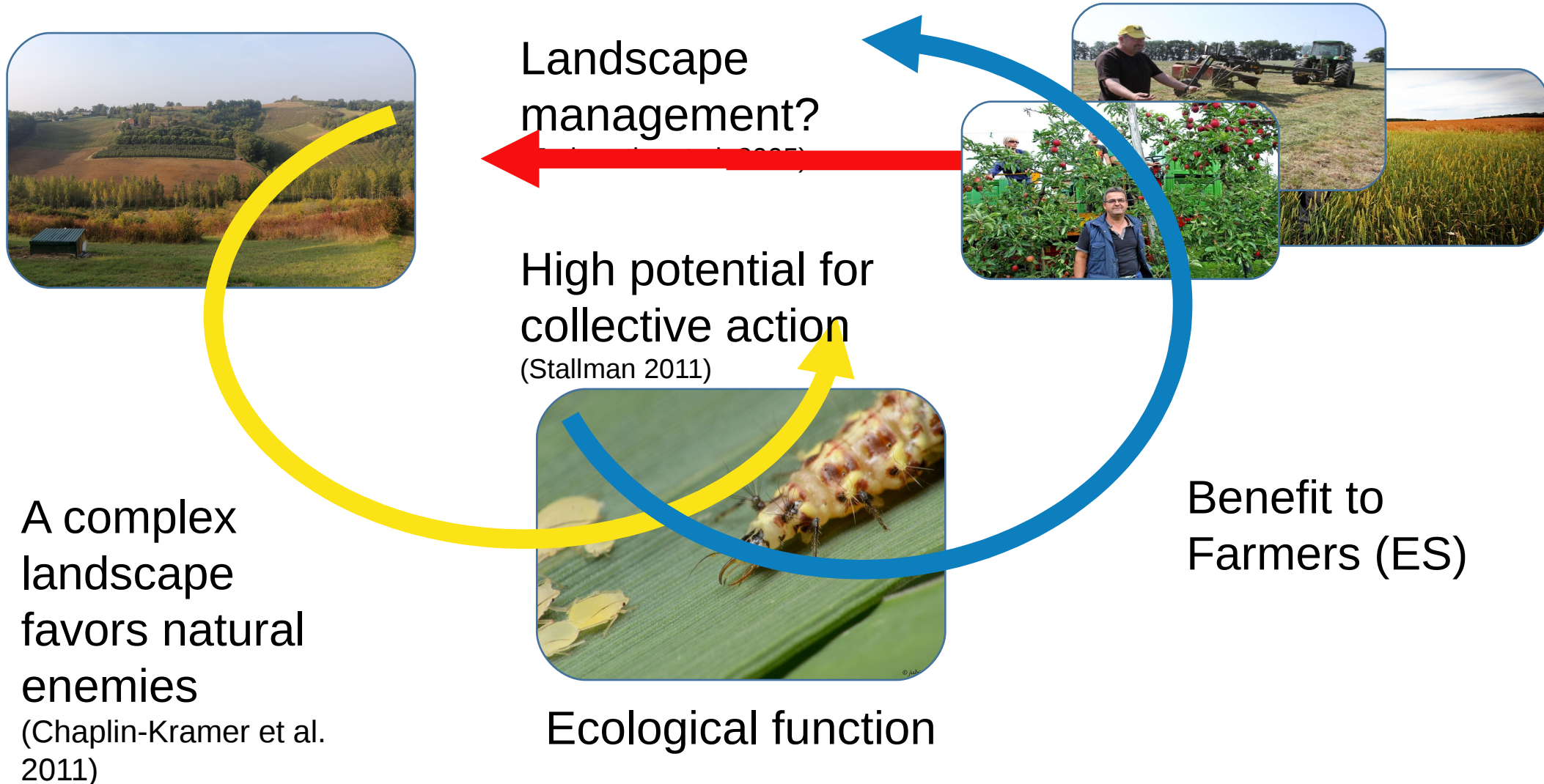
# Are farmers interested in involving landscape complexity in their pest regulation strategy?

Salliou Nicolas, Cécile Barnaud, Claude Monteil, Aude Vialatte, Jean-Philippe Choisis



# Engineering complex landscapes ?

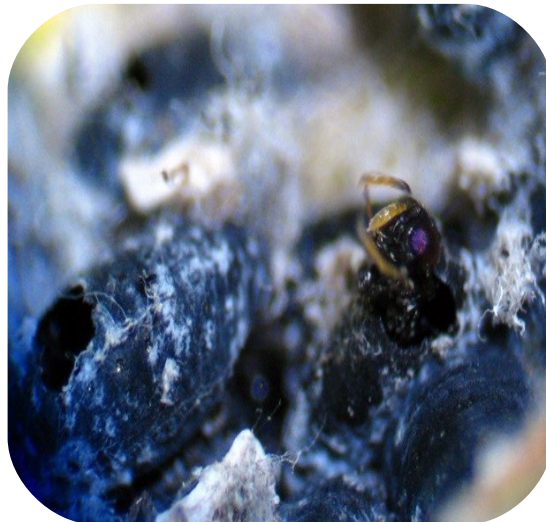
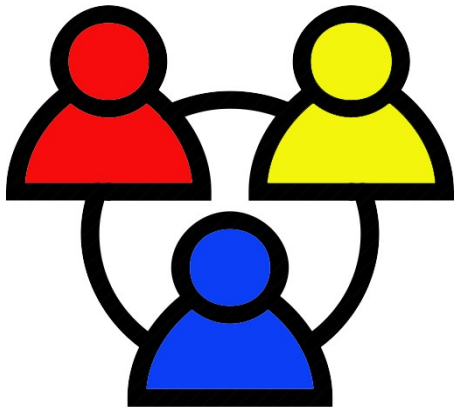
Problema



# Innovation in agro-ecosystem design

## Problematic

« Innovating in agro-ecosystem design often means that **groups and resources are to be built up** with stakeholders themselves » (Berthet 2013)



# Modelling with stakeholders

Methodology

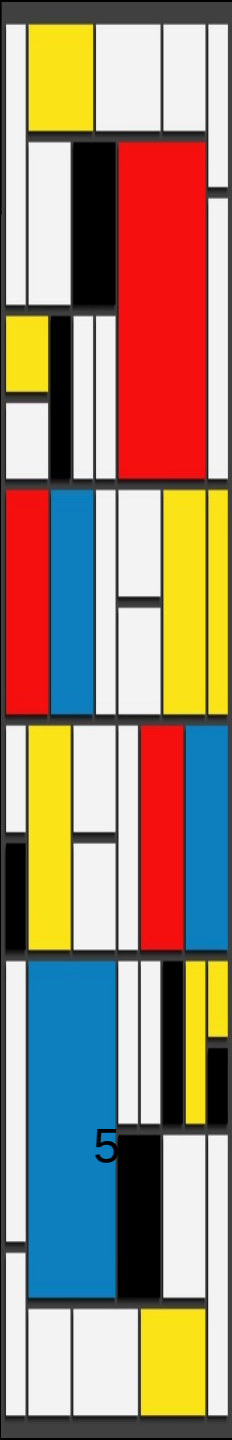
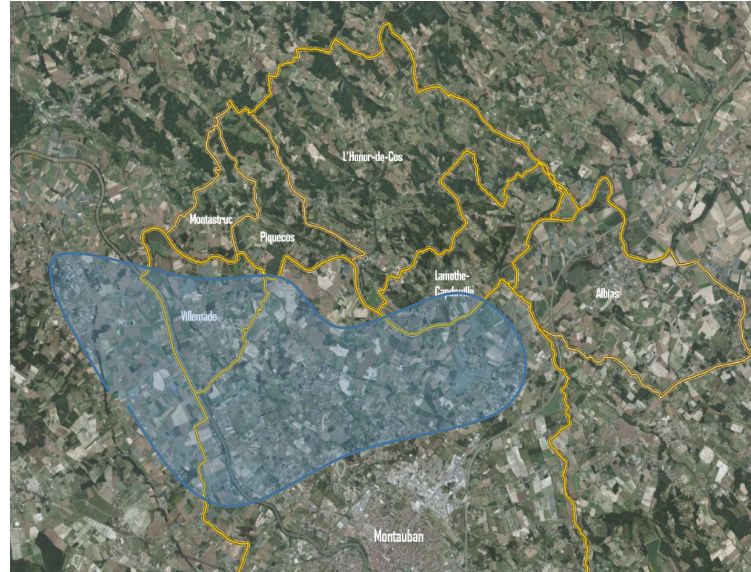
- **A modelling attitude** (posture) which actively seeks to get involved with stakeholders and their social needs
- A modelling approach which is **iterative**, **adaptative** and **exploratory**





# A intensive tree fruit production area

Study  
site

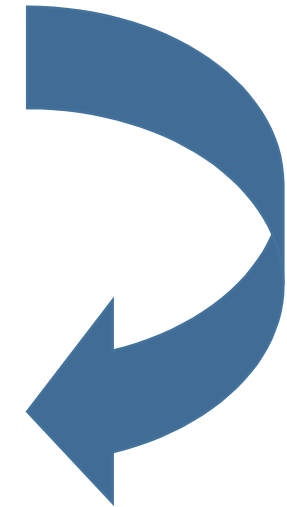


# Ecosystemic dependances?

Modelling  
#1

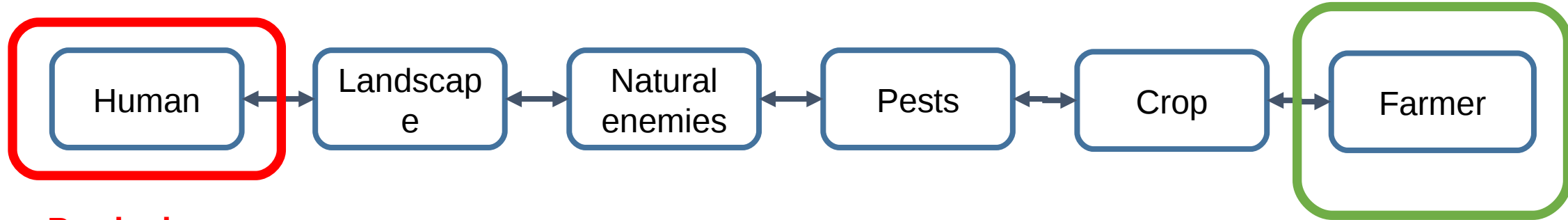
Question : Is there ecosystemic dependances regarding biological control by conservation ?

Modelling : Individual interviews and mental models of local stakeholders



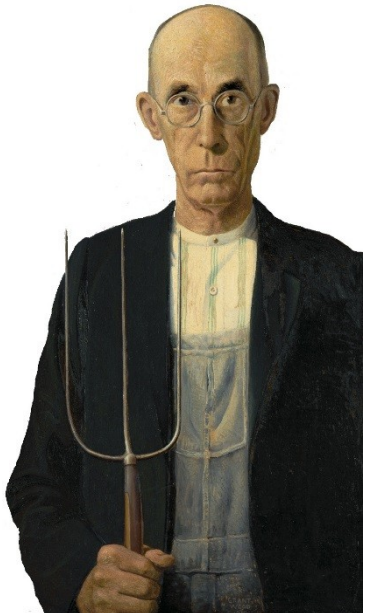
# Ecosystemic dependances?

Modelling  
#1



Producing an  
ecosystem  
service

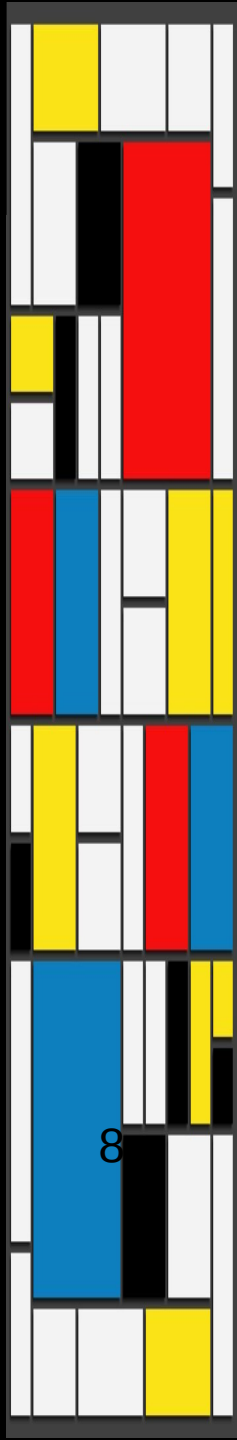
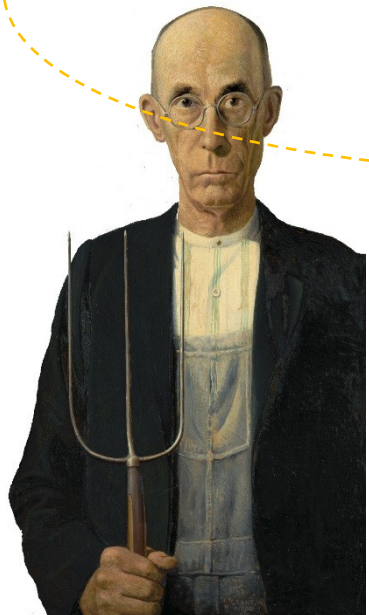
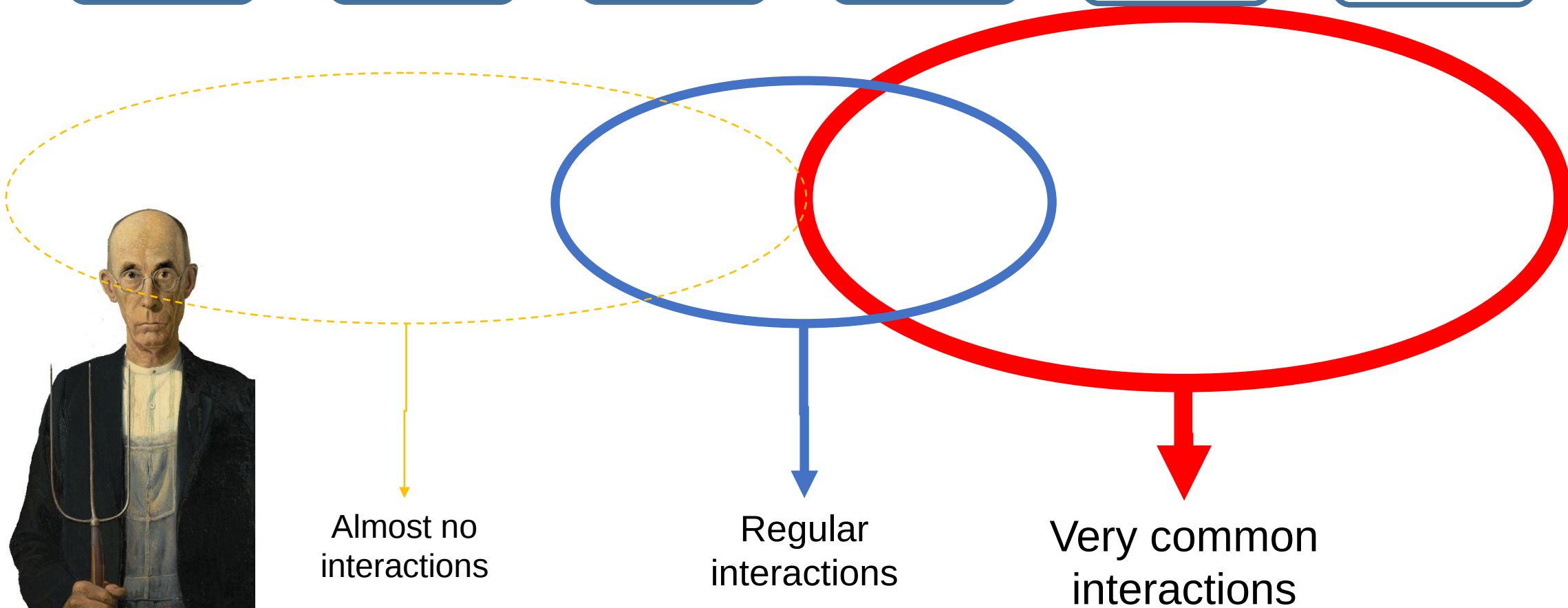
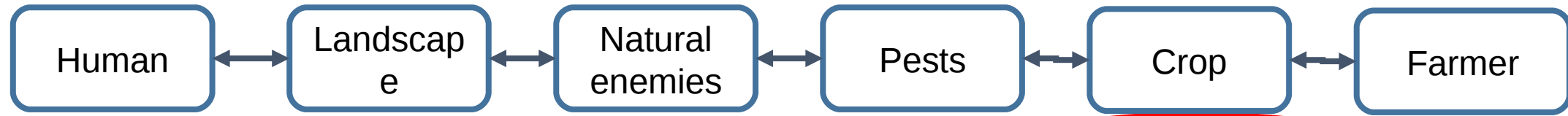
Benefiting  
from the  
ecosystem  
service





# Ecosystemic dependances?

Modelling  
#1



# Ecosystemic dependances?

Modelling  
#1

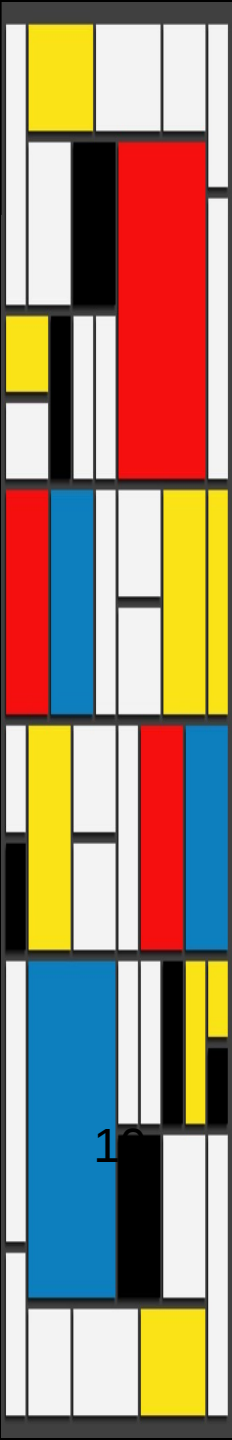
For interviewees  
the landscape is  
not source of  
natural enemies  
but potential  
damages

New question :

Why such a knowledge gap between local stakeholders and landscape ecology findings?

Are there ecosystemic dependances regarding biological control by conservation ?

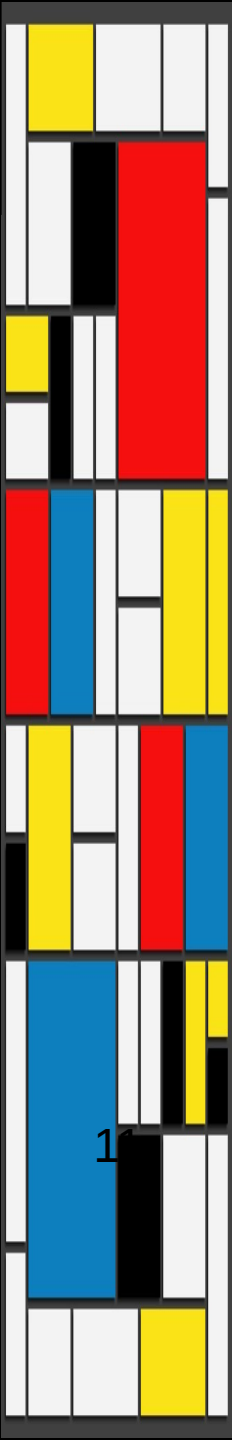
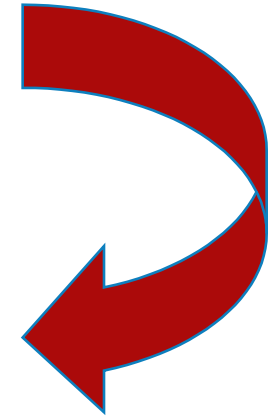
Individual interviews and mental models of local stakeholders



# Representation-based uncertainty? Modelling #2

Question : Why such a knowledge gap between local stakeholders and landscape ecology findings?

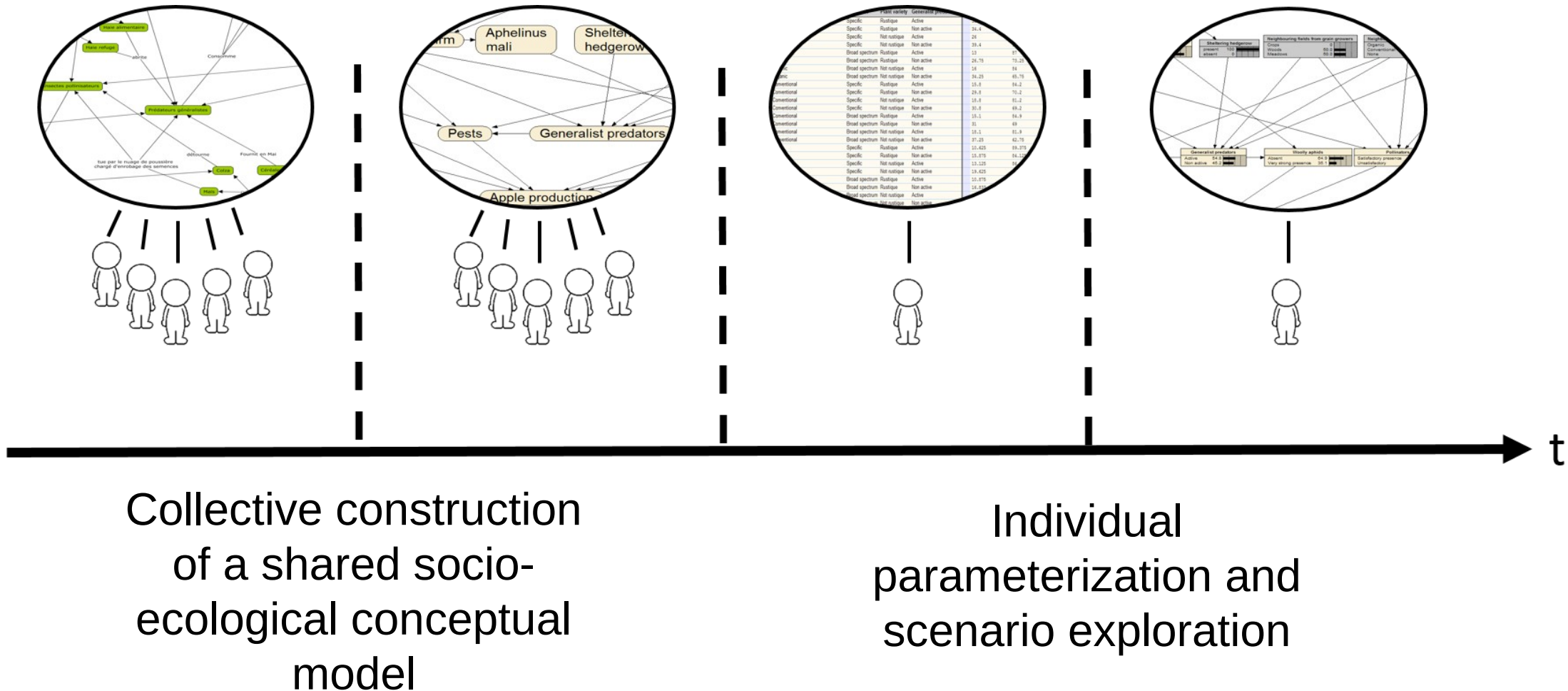
Modelling: Participatory Bayesian modelling about individual stakeholder representations (Scientific vs. Locals)





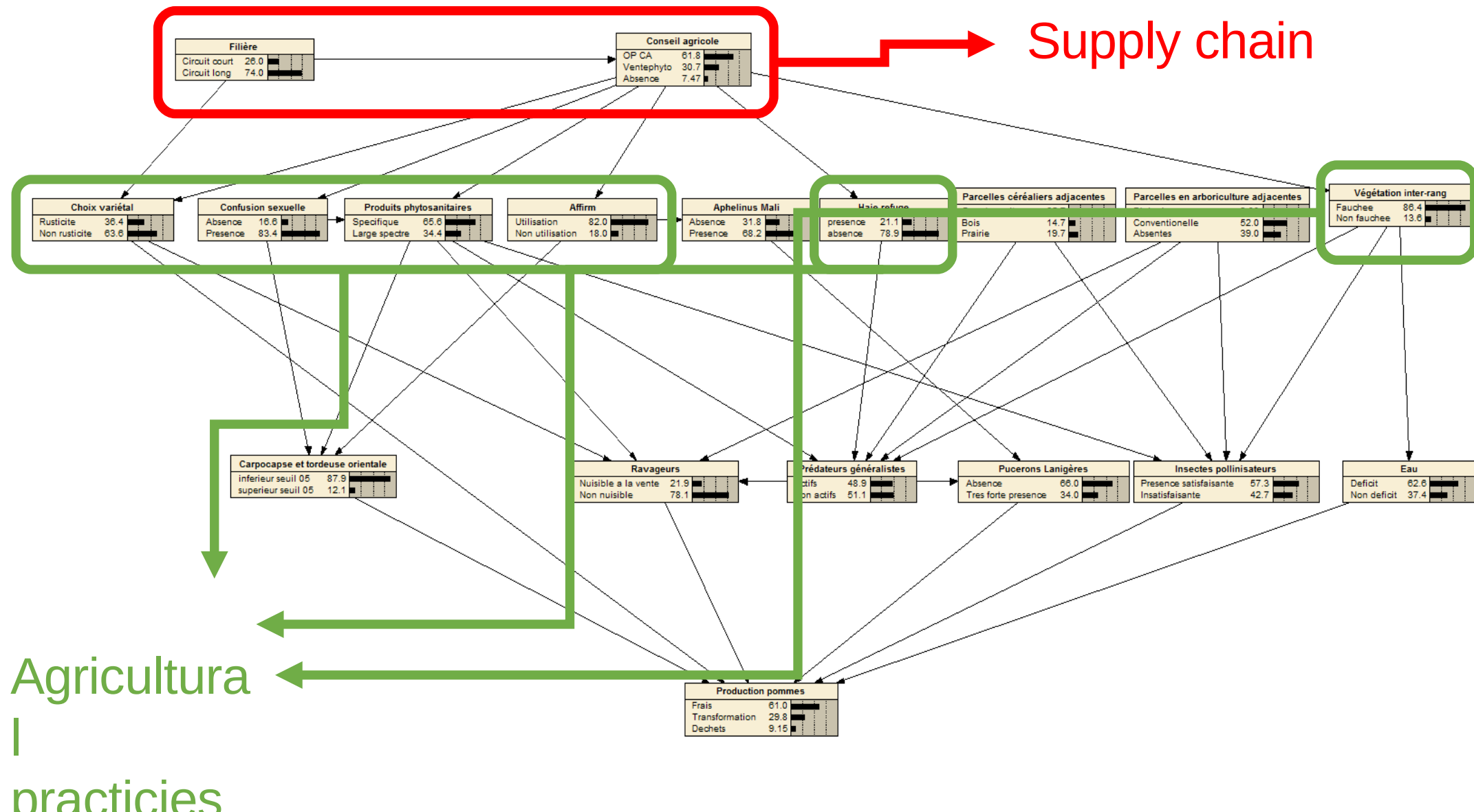
# towards individual Bayesian models

Modelling  
#2



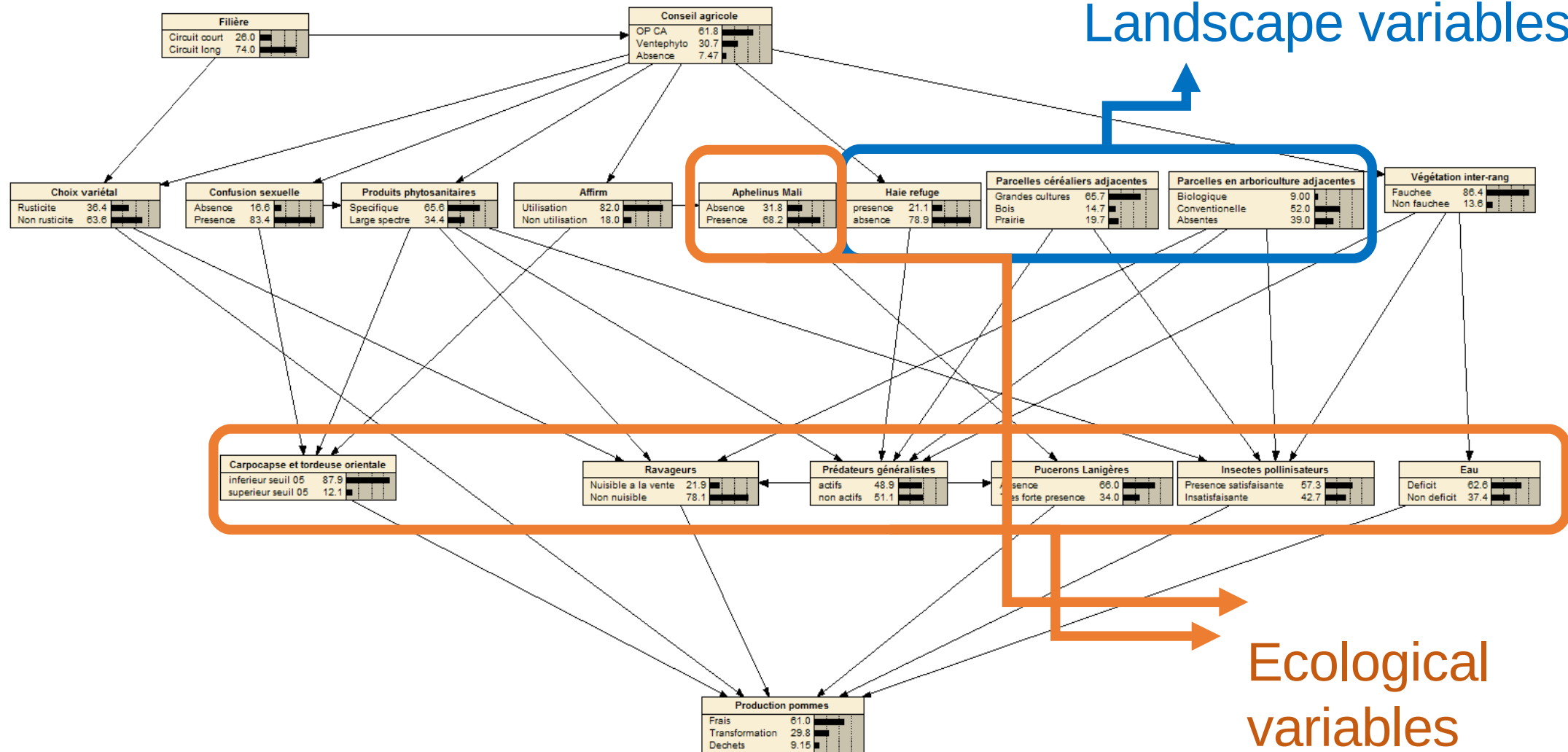
# Bayesian Network

Modelling  
#2



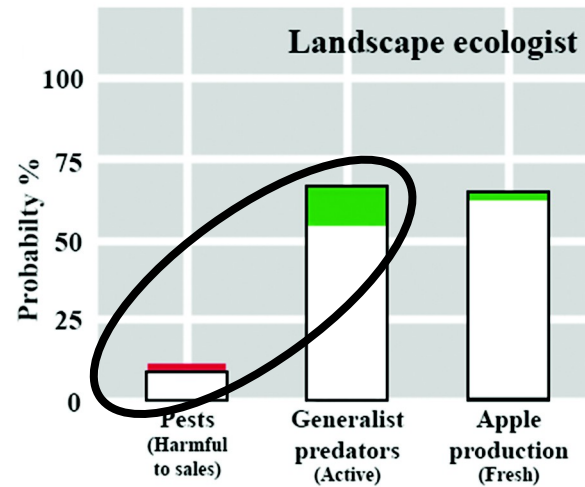
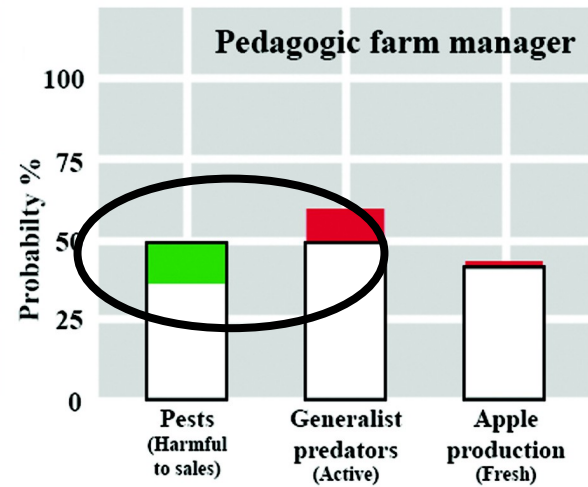
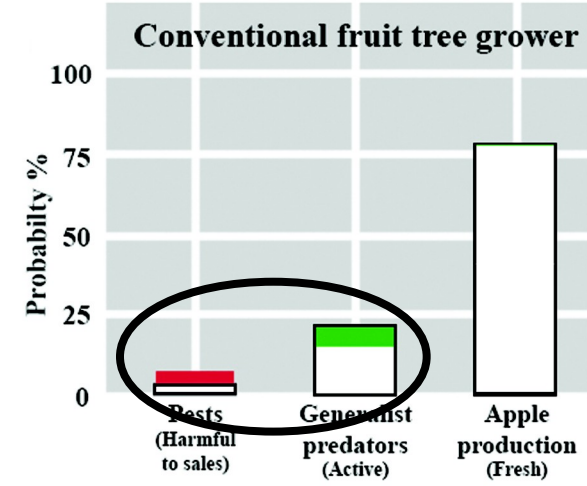
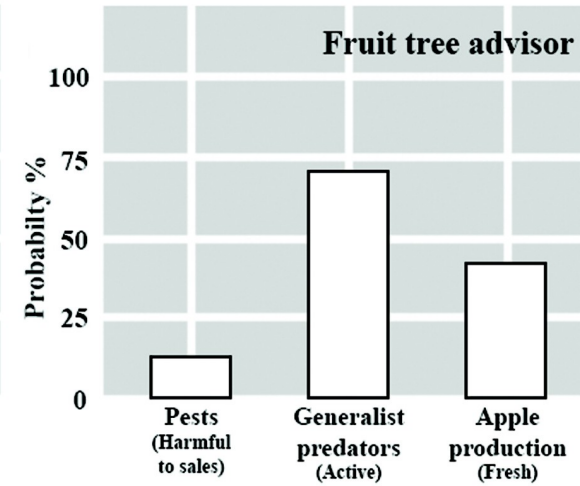
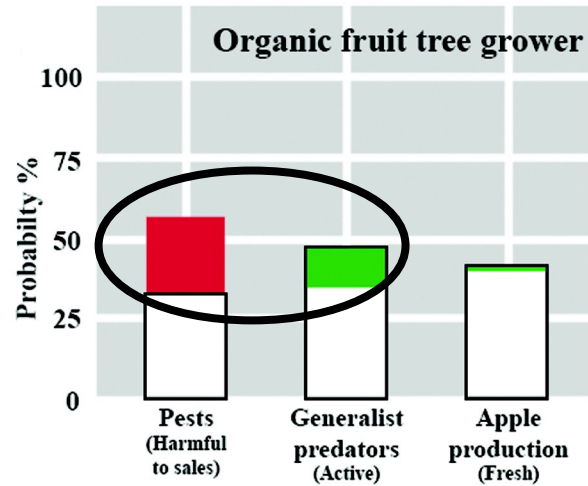
# Bayesian Network

Modelling  
#2

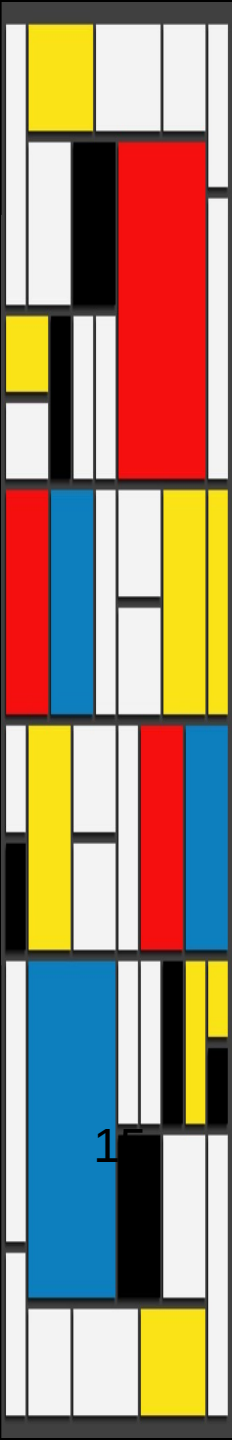


# Scenario : complex landscape

Modelling  
#2



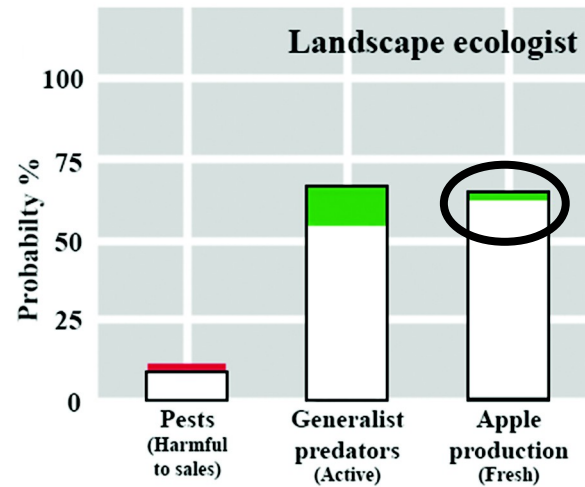
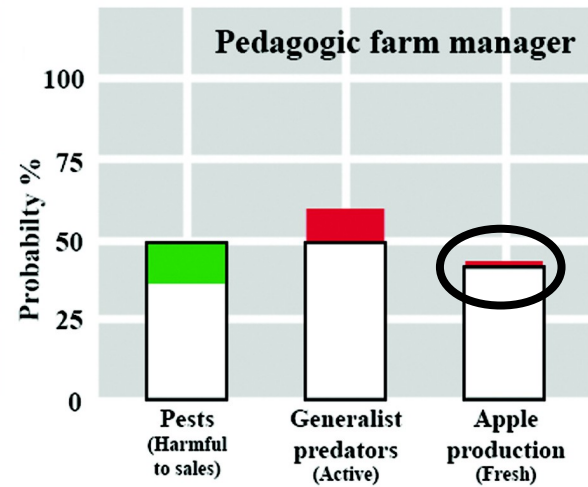
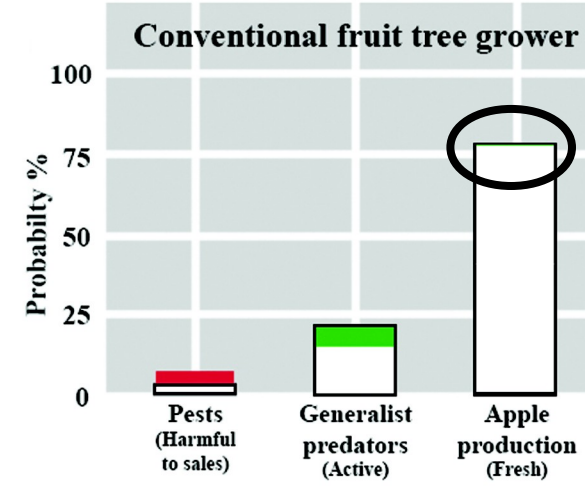
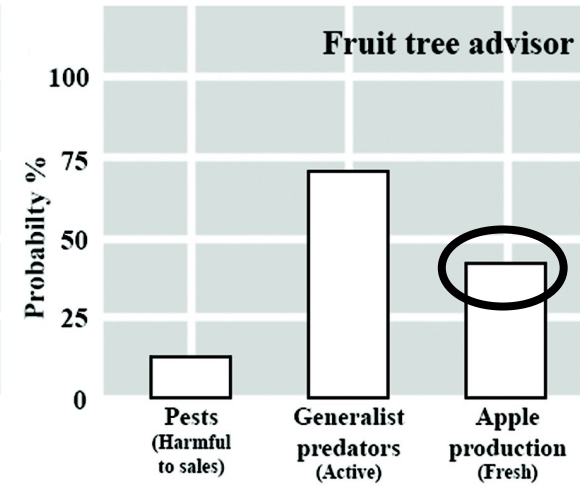
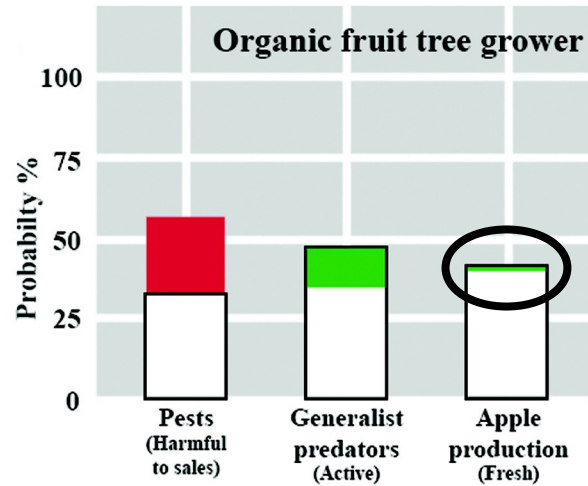
Most stakeholders have representation of a complex landscape having an effect on natural enemies variable and pests





# Scenario : complex landscape

Modelling  
#2

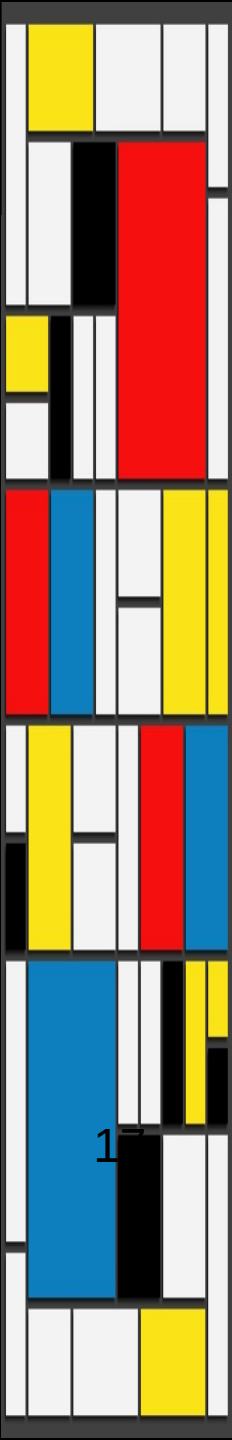
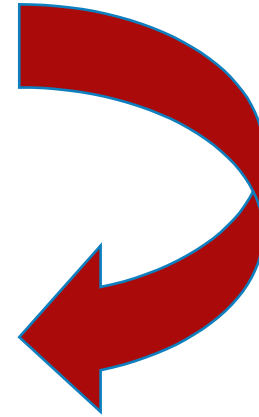
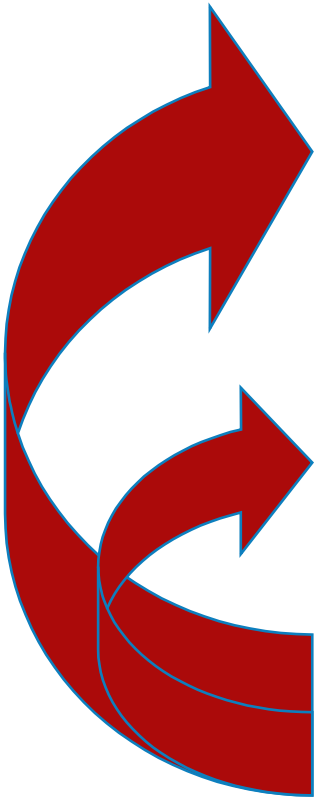


All stakeholders do not  
associate a complex  
landscape with significant  
benefits regarding the  
production variable

Difference of what is « significant »  
between scientists and local stakeholders

Why such a knowledge gap between local  
stakeholders and landscape ecology  
findings?

Participatory Bayesian modelling about  
individual stakeholder representations  
(Scientific vs. Locals)



# Conclusion

- Landscape complexity does not appear here to be in the interest of local stakeholders
- Need for more studies linking more explicitly potential ecological function with social demands
- Questionning the regular approximation that ecological function = ecosystem services.

Thank you for your attention

More information?  
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